

AMENDMENTS TO THE CLAIMS

1. (Canceled)
2. (Previously Presented) The capacitor of claim 9 wherein the composite portion comprises glass sintered with the ceramic dielectric portion.
3. (Previously Presented) The capacitor of claim 9 wherein the composite portion comprises a matrix of the ceramic, and particles of the conductive metal are dispersed in the matrix, and wherein the conductive metal particles comprise about 40-90% of the composite portion.
- 4-5. (Canceled)
6. (Previously Presented) The capacitor of claim 9 further comprising a buried horizontally-oriented metallization in the dielectric portion and having at least one conductive metal-filled via extending from the buried metallization to the composite portion.
- 7-8. (Canceled)
9. (Previously Presented) A capacitor comprising an essentially monolithic structure of at least one composite portion sintered with a ceramic dielectric portion, wherein the composite portion includes a ceramic and a conductive metal in an amount sufficient to render the composite portion conductive, and wherein the ceramic dielectric portion is horizontally disposed with the composite portion sintered to a bottom portion thereof, the composite portion adapted to be mounted onto a pc board, and the capacitor further comprising a metallization on a top portion of the ceramic dielectric portion, the metallization adapted to be wire bonded to a pc board.
- 10-11. (Canceled)

12. (Previously Presented) The capacitor of claim 23 wherein the composite end portions comprise a matrix of the ceramic, and particles of the conductive metal are dispersed in the matrix, and wherein the conductive metal particles comprise about 40-90% of the composite end portions.

13-22. (Canceled)

23. (Previously Presented) A surface mountable, monolithic capacitor comprising:

a center vertically-oriented ceramic dielectric portion having opposed vertical coplanar surfaces;

a pair of composite electrode end portions comprising a ceramic and a conductive metal in an amount sufficient to render the composite conductive, each end portion having an internal vertical face and a plurality of external faces, each internal vertical face co-sintered to a respective opposed vertical coplanar surface of the center ceramic dielectric portion so as to have essentially no boundary therebetween, whereby the conductive end portions serve as electrodes for the capacitor and are directly mountable on metallic surface traces on a printed circuit board.

24. (Previously Presented) The capacitor of claim 23 wherein the composite end portions adjacent the internal vertical faces further comprise glass.

25. (Original) The capacitor of claim 23 wherein the conductive metal comprises about 90% of the composite end portions.

26. (Previously Presented) The capacitor of claim 23 further comprising at least one buried vertically-oriented metallization in the center ceramic dielectric portion intermediate the opposed coplanar surfaces, and having at least one metal-filled via extending from the buried metallization to one of the composite end portions.

27-37. (Canceled)

38. (Previously Presented) The capacitor of claim 23 wherein the composite end portions comprise glass sintered with the ceramic dielectric portion.
39. (Previously Presented) The capacitor of claim 23 wherein the ceramic dielectric portion is free of internal metal electrodes.
40. (Previously Presented) A surface mountable, monolithic capacitor comprising:
a center horizontally-oriented ceramic dielectric portion having opposed horizontal coplanar surfaces;
top and bottom composite electrode portions comprising a ceramic and a conductive metal in an amount sufficient to render the composite conductive, each composite electrode portion having an internal horizontal face and a plurality of external faces, each internal horizontal face co-sintered to a respective opposed horizontal coplanar surface of the center ceramic dielectric portion so as to have essentially no boundary therebetween, whereby the conductive electrode portions serve as electrodes for the capacitor and the bottom electrode portion is directly mountable on a metallic surface trace on a printed circuit board.
41. (Previously Presented) The capacitor of claim 40 wherein the ceramic dielectric portion is free of internal metal electrodes.
42. (Previously Presented) The capacitor of claim 40 wherein the composite electrode portions comprise glass sintered with the ceramic dielectric portion.
43. (Previously Presented) The capacitor of claim 40 wherein the composite electrode portions comprise a matrix of the ceramic, and particles of the conductive metal are dispersed in the matrix, and wherein the conductive metal particles comprise about 40-90% of the composite electrode portions.

44. (Previously Presented) The capacitor of claim 40 wherein the composite end portions adjacent the internal horizontal faces further comprise glass.
45. (Previously Presented) The capacitor of claim 40 wherein the conductive metal comprises about 90% of the composite end portions.
46. (Previously Presented) The capacitor of claim 9 wherein the ceramic dielectric portion is free of internal metal electrodes.
47. (New) A method of making an essentially monolithic capacitor comprising the steps of:
placing a green-state ceramic dielectric sheet on a first green-state composite sheet, the composite comprising a ceramic and conductive metal;
laminating the sheets together;
cutting the laminated sheets a plurality of times in a first direction and then a plurality of times in a second direction perpendicular to the first direction to form a plurality of chips comprising a green-state ceramic dielectric portion adjacent a green-state composite portion; and
firing the chips to sinter the ceramic in the ceramic dielectric portion to the ceramic in the composite portion.
48. (New) The method of claim 47 further comprising, prior to laminating, placing a second green-state composite sheet on the green-state ceramic dielectric sheet, whereby after cutting, a plurality of chips are formed comprising a green-state ceramic dielectric portion between two green-state composite portions.
49. (New) The method of claim 48 further comprising, prior to placing the green-state ceramic dielectric sheet, providing metallizations on each of opposing faces of the green-state ceramic dielectric sheet in spaced strips extending to opposed edges, and wherein the first direction of cutting is parallel to the strips and in the spaces therebetween.

50. (New) The method of claim 49 further comprising, after firing the chips, electroplating the chips with a conductive metal whereby a conductive coating is formed over exposed surfaces of the composite portions by virtue of the conductive metal therein.

51. (New) The method of claim 47 further comprising providing a metallization on the ceramic dielectric portion on a face opposing the composite portion.

52. (New) The method of claim 47 further comprising forming the ceramic dielectric sheet with one or more buried electrodes therein and one or more metal filled vias extending from each buried electrode to a surface of the ceramic dielectric sheet.

53. (New) The method of claim 47 wherein the first green-state composite sheet includes a glass-containing surface layer and the green-state ceramic dielectric sheet is placed on the glass-containing surface layer.

54. (New) A method of making an essentially monolithic surface mountable capacitor comprising the steps of:

providing metallizations on each of opposing faces of a green-state ceramic dielectric sheet in spaced strips extending to opposed edges;

placing the green-state ceramic dielectric sheet with the metallizations on a first green-state composite sheet;

placing a second green-state composite sheet on the green-state ceramic dielectric sheet, wherein the composite sheets each comprise a ceramic and conductive metal in an amount insufficient to render the composite conductive;

laminating the sheets together;

cutting the laminated sheets a plurality of times in a first direction and then a plurality of times in a second direction perpendicular to the first direction wherein the first direction of cutting is parallel to the strips of metallization and in the spaces therebetween to form a plurality of chips comprising a green-state ceramic dielectric portion partially metallized on each of opposing surfaces, the opposing surfaces between and contacting two green-state

composite portions;

firing the chips to sinter the ceramic in the ceramic dielectric portion to the ceramic in the composite portions; and

electroplating the chips with a conductive metal whereby a conductive coating is formed over exposed surfaces of the composite portions by virtue of the conductive metal therein.

55. (New) The method of claim 54 further comprising forming the ceramic dielectric sheet with one or more buried electrodes therein and one or more metal filled vias extending from each buried electrode to a surface of the ceramic dielectric sheet.

56. (New) A method of making a monolithic surface mountable capacitor comprising the steps of:

placing a green-state ceramic dielectric sheet on a first green-state composite sheet;

placing a second green-state composite sheet on the green-state ceramic dielectric sheet, wherein the composite sheets each comprise a ceramic and conductive metal in an amount sufficient to render the composite conductive;

laminating the sheets together;

cutting the laminated sheets a plurality of times in a first direction and then a plurality of times in a second direction perpendicular to the first direction to form a plurality of chips comprising a green-state ceramic dielectric portion between two green-state conductive composite portions;

firing the chips to sinter the ceramic in the ceramic dielectric portion to the ceramic in the conductive composite portions.

57. (New) The method of claim 56 wherein the first and second green-state composite sheets each include a glass-containing surface layer such that, upon placement, the green-state ceramic dielectric sheet is between the glass-containing surface layers.